Early Caregiving Predicts Attachment Representations in Adolescence: Findings from Two Longitudinal Studies

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Abstract

Background: A growing research base demonstrates that adolescents' construction of secure attachment relationships may underlie successful social and personal relationships and healthy behavioral adjustment. Little is known about the early caregiving origins of adolescent attachment security; this study provides some of the first data on this topic.

Method: The relative contribution of early and current caregiving quality to attachment security in adolescence was assessed in two longitudinal studies of a clinic-referred and an at-risk community sample using identical measures (n=209). Quality of early parent-child relationships at age 3-7 years of age and parent-adolescent relationship quality at approximately 12 years were assessed using observational methods; psychosocial risk was derived from extensive interview and questionnaire assessments; adolescent attachment quality was assessed using a standard attachment interview.

Results: Analyses indicated moderate stability in observed parent-child interaction quality from early childhood to adolescence. Observational ratings of both early childhood and current caregiving quality were significantly associated with adolescent attachment security; however, early caregiver sensitivity was more strongly associated with adolescent attachment security and predicted later attachment security independently from current caregiving quality. Follow-up analyses indicated that this longitudinal prediction was significantly weaker in the clinic than in the at-risk community sample.

Conclusion: Parental sensitive responding in childhood has enduring effects on attachment representation in adolescence, independent of current parenting relationship quality. These findings provide important new evidence supporting early parenting interventions for promoting youth well-being and adjustment.

Key words: adolescence, attachment, parent-child interactions, longitudinal, psychosocial risk

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The empirical research base on attachment in adolescence is now substantial. Reliable methods for assessing individual differences in attachment quality have been developed (Allen et al., 2003; Kobak & Sceery, 1988; Shmueli-Goetz, Target, Fonagy, & Datta, 2008) and associated with contemporary measures of caregiving quality according to observational, interview, and questionnaire methods (Allen et al., 2003; Karavasilis, Doyle, & Markiewicz, 2003; Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993; Scott, Briskman, Woolgar, Humayun, & O'Connor, 2011). Furthermore, research findings indicate that adolescent attachment security is robustly associated with mental health and social competence, including antisocial behaviour and delinquency; quality of friendships and romantic relationships; and academic adjustment (Allen et al., 2003; Allen, Porter, McFarland, McElhaney, & Marsh, 2007; Cavendish, Nielsen, & Montague, 2012; Markiewicz, Doyle, & Brendgen, 2001; Scott et al., 2011). What has not attracted significant research attention is the degree to which attachment patterns in adolescence are predictable from early caregiving quality. That is the focus of the current study.

In the current study attachment quality is assessed from coders' ratings of adolescent narratives in response to a detailed, semi-structured interview (Shmueli-Goetz et al., 2008). Ratings of attachment security are based on the adolescent's descriptions of and examples of relationship quality and how the adolescent responds to questions about specific experiences of distress. We employ this narrative assessment methodology and the power of two parallel long-term longitudinal studies to ask three key questions: 1) does early caregiver sensitivity predict adolescent attachment security? 2) does early caregiver sensitivity predict adolescent

attachment even after accounting for contemporary measures of caregiving quality? 3) does the strength of the prediction from early caregiver sensitivity vary with social risk context?

A driving hypothesis for this research is that secure attachment representations in adolescence would be predicted from early caregiver sensitivity. That is based on the etiological role that caregiver sensitivity is theorized to play in forming the child's perceived sense of safety and in fostering a secure base for exploration, while also attending to the complex developmental processes leading to probabilistic rather than determined outcomes (Bowlby, 1982; Sroufe, 2005). The evidence base demonstrating that caregiver sensitivity is a robust – if not a substantial – predictor of concurrently assessed attachment security in infants and young children is sizable and, importantly, extends to multiple methods for assessing both caregiver sensitivity and child attachment security (Ainsworth, Blehar, Waters, & Wall, 1978; Beebe & Steele, 2013; De Wolff & van Ijzendoorn, 1997; Matias, O'Connor, Futh, & Scott, 2014; Pederson et al., 1990; Stevenson-Hinde & Shouldice, 1995). Evidence that early caregiving sensitivity may have long-term prediction to later attachment is strongly suggestive; the literature specifically examining attachment in early- or mid-adolescence is limited, however. For example, in a sample of early adoptees (Beijersbergen, Juffer, Bakermans-Kranenburg, & van, 2012) parental sensitivity at 12 months of age was associated with Secure attachment at age 14 years. Studies of attachment in older adolescents and young adults also emphasize the role of early caregiving quality, including the Minnesota longitudinal study (Sroufe, 2005) and Beckwith et al.'s study of premature infants which indicated that individuals classified as having an Avoidant attachment on the AAI at age 18 years received less responsive care in infancy than those classified as Secure or Preoccupied (Beckwith, Cohen, & Hamilton, 1999). Also, analyses of the NICHD day care study (Booth-LaForce et al., 2014; Groh et al., 2014) indicate that attachment security on the AAI at 18 years was associated with history of caregiver sensitivity, but the distinguishing role of early

caregiving quality was not deciphered because caregiver sensitivity was composited across multiple occasions of measurement.

On the other hand, there are several reasons to support the rival hypothesis that adolescent attachment narratives would not be predicted from early caregiver sensitivity, after accounting for current caregiving context. One is that the construct of attachment differs in important ways in infancy and adolescence. For example, functions of protection and safety, which characterize infant attachment, are less salient in the adolescent who is, in any event, increasingly spending more time alone and with peers and less time within proximity to caregivers, e.g., (Larson, 1997; Richards, Crowe, Larson, & Swarr, 1998). Certain caregiving qualities that may be important for the promotion of attachment security in adolescence, which might include parental monitoring and child self-disclosure that facilitates parental monitoring (Branstetter, Furman, & Cottrell, 2009; Kerns, Aspelmeier, Gentzler, & Grabill, 2001; Kerr & Stattin, 2000), are not detectable from caregiving assessments in early childhood. Additionally, the "state of mind" assessment, which is the basis for categorizing adolescents as displaying a Secure or Insecure attachment in much of the literature, may reflect not so much prior or current caregiving qualities as much as a broader construct of emotion regulation that integrates caregiving and other experiences and reflects a broad-based measure of psychological well-being (Allen & Manning, 2007; Allen & Miga, 2010; Zimmermann & Spangler, 2016). Perhaps related to these findings is the evidence that individual differences in attachment security appear to be much more strongly influenced by genetic factors in older than younger children (Fearon, Shmueli-Goetz, Viding, Fonagy, & Plomin, 2014; O'Connor & Croft, 2001). Finally, because child-parent attachment would be expected to respond to changing caregiving conditions and contexts (Belsky & Fearon, 2002; Bowlby, 1988; Sroufe, 2005), attachment in adolescence may not be predicted from early caregiving quality to the extent that the quality of caregiving changes.

We also consider psychosocial and contextual factors which may moderate the prediction of adolescent attachment from early caregiving quality. One is psychosocial risk context. Previous attachment research is consistent with the hypothesis that the long-term prediction of adolescent and adult attachment from early caregiving may be weaker in high-risk settings than low- or normal-risk settings (Pinquart, Feussner, & Ahnert, 2013), perhaps because of marked changes in caregiving quality or more stressful life experiences. We test these hypotheses in the current study, which follows two samples which differ in psychosocial risk context. Second, in response to evidence that children may differ from one another in their susceptibility to caregiving influences (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van Ijzendoorn, 2011), we examine child factors that may moderate the prediction of caregiver sensitivity on attachment security in adolescence. Child irritability is included as a child factor that may moderate caregiving effects because it has been a focus of prior observational (Essex, Armstrong, Burk, Goldsmith, & Boyce, 2011) and treatment (Scott & O'Connor, 2012) studies of differential susceptibility.

Method

Sample and Procedure

The study is composed of two independent samples of children and parents who participated in separate randomized controlled trials of parenting interventions for disruptive behavioral problems when the children were aged 3-7 years of age; both samples were followed up when the children were adolescents using a common protocol.[1] The first sample is a clinic sample of children who were referred to mental health clinics in South London and Sussex because of antisocial behavior (Scott, Spender, Doolan, Jacobs, & Aspland, 2001); 107 of 141 original families were successfully followed-up in adolescence. The second sample, the community "at risk" sample, was composed of children who were selectively

[1] the protocol is available at http://www.kcl.ac.uk/iop/depts/cap/research/napr/ our-research-projects/space.aspx

recruited from schools because of elevated conduct problems according to parent and teacher reports (Scott et al., 2010); 102 of 128 families in the original study were successfully followed-up. In both studies, the early intervention consisted of the Incredible Years program (Webster-Stratton & Reid, 2010). To avoid the potential confound of treatment, we use post-intervention data as the measure of early childhood caregiving quality. For both samples, exclusion criteria were recognized developmental delay and inability to communicate in English. Parents were paid £20 for participation; adolescents were paid £10. The study was approved by the research ethics committee of King's College London; written informed consent was obtained from parents and adolescents.

Measures

Observations of early parent-child interactions Quality of early parenting behavior was assessed using a 15-minute direct observation of parent-child interaction across three tasks: a) child-directed free play, b) a parent-directed building task using Lego blocks; c) a tidy-up task in which the child is instructed by the parent to put away toys. Each episode was videotaped and later coded by raters blind to identifying information. Caregiver-child interactions were coded using the Coding of Attachment-Related Parenting (CARP); reliability and validity data for the coding system have been reported in several samples (Bisceglia et al., 2012; O'Connor, Matias, Futh, Tantam, & Scott, 2013). Two attachment-related parenting behaviors, coded on a 7-point Likert scale, are included. *Sensitivity* assesses the degree to which the parent shows awareness of the child's needs and sensitivity to his/her signals, promotes the child's play and exploration, and adopts the child's psychological point of view. *Mutuality* is conceptually compatible with the notion of the "goal-corrected partnership" (Bowlby, 1982) and reflects the degree to which parent and child in the dyad accept and seeks the other's involvement in a joint activity, build on each other's input and coordinate their efforts/actions while conducting a task together, maintain shared attention

and fluid conversation, and reciprocate positive affectionate behaviors. Inter-rater reliability, based on ICC, of 15 randomly chosen parent-child play observations coded by two independent raters was .82 for Sensitivity and .76 for Mutuality.

In addition to coding attachment-based constructs, we also included a measure of Criticism from the Parent Behavior Coding Scheme (PBCS), an event-based observational measure adapted from the widely-used Behavior Coding Scheme (Forehand & McMahon, 1981). Criticism is coded for verbalizations with negative content and negative tone and is the count of critical remarks adjusted per minute for the interaction. Inter-rater reliability using intra-class correlation, based on 20 tapes, was .91.

Observed adolescent-parent interaction quality. At the adolescent follow-up, we used the standard 10-minute hot topic problem-solving paradigm in which the parent and adolescent discuss a topic chosen by each of them that is a leading source of conflict in the relationship (Hagan, Hollier, O'Connor, & Eisenberg, 1992; Scott et al., 2011). Specific global codes were warmth/support, communication, assertiveness, involvement, anger/rejection, and coercion. Each dimension was coded on a 5-point Likert scale that best reflected the participant's overall behavior in each interaction task. Coders were extensively trained and checked for reliability on 30 dyads. Reliability of the parent and adolescent ratings was made by two researchers who were blind to all identifying information. Consistent with prior studies, a factor analysis led to two factors: a Warmth/Engagement positive factor comprised warmth/support (reliability by intraclass correlation: parent 0.82, child 0.84), communication (0.81, 0.80), assertiveness (0.92, 0.53) and involvement (0.75, 0.74); and an Angry/Irritable negative factor which comprised anger (0.75, 0.71) and coerciveness (0.67, 0.70).

Child attachment interview (CAI). The CAI is a semi-structured interview designed to access mental representations of attachment figures and is conceptually based on the Adult Attachment Interview (AAI; Hesse, 1999). The reliability and validity of the CAI with both

normal and clinical populations has been reported (Shmueli-Goetz, Target, Fonagy, & Datta, 2008). The youth is asked to describe relationship qualities, what happens when the youth is ill or hurt or when the parent gets angry; the youth is asked to provide examples of each scenario. The interview is videotaped and transcribed. Raters assess dimensional scales (Coherence, Dismissing, Idealisation, Emotional Openness, and Preoccupied Anger, Use of Examples, Balance, Resolution of Conflict) that inform the assignment of Attachment Classifications: Secure, Insecure-Dismissing, Insecure-Preoccupied and Disorganized/Disoriented. Separate ratings were made for mother and father although the Secure/Insecure attachment designation for parents overlapped substantially (kappa = .85, $p<.001$). Reliability of CAI ratings was conducted in two distinct stages. First, two coders trained by the instrument developers met reliability criteria on a standard sample of 20 cases: 90% agreement (kappa = .79) for the Secure-Insecure split and 85% (kappa = .78) agreement on the four-way classifications. Second, on a further 10 interviews drawn at random from the study, inter-rater reliability for the two coders was 90% for the 2-way, 80% for the 3-way and 4-way classifications. Disagreements on coding were resolved by discussion, and 4 interviews were referred to the instrument developers for further guidance. Coders were blind to the other data collected on the adolescents.

Child and family contextual risks. Stressful life events were taken from an adapted version of the Coddington Life Events Scale for parents (Coddington, 1972) and completed concerning the 12 months prior to the adolescent assessment. Neighbourhood quality is an adapted measure from Sampson (Sampson, Raudenbush, & Earls, 1997) and Odgers (Odgers et al., 2009) that asked parents to respond to several questions about the neighbourhood that assess problems (10 items), cohesion (4 items), friendliness (4 items), and appeal (4 items). Child irritability, a marker of possible susceptibility to early caregiving influence, was based on items selected from the Strengths and Difficulties Questionnaire (Goodman & Scott,

1999) consistent with prior work (Scott & O'Connor, 2012; Stringaris & Goodman, 2009), which identified three dimensions of oppositional behavior (irritable, headstrong and hurtful).

Child and family covariates. A structured interview with the primary caregiver assessed details about child age and sex, family structure (coded as single- or two-parent family), maternal education (using a 5-point distinction ranging from no qualifications to higher education), and caregiver and child race and ethnicity (coded minority or non-minority); length of follow-up period was also considered. The Weschler Abbreviated Scale of Intelligence (Weschler, 1999) was administered to the youth by a trained psychologist at the adolescent assessment. Treatment history and sample (clinic versus community sample) were also included as covariates and potential moderators.

Data analysis

After reporting descriptive data and attrition analyses, we provide bivariate analyses between observational assessments from early childhood and adolescence, attachment narratives, and key covariates. This is followed by regression analyses to examine the independent prediction of early caregiving on adolescent attachment Security. For these analyses, maternal education is included as a measure of socio-demographic risk and adolescent sex, age, and verbal IQ are included as covariates on an *a priori* basis. We then consider if the longitudinal and concurrent associations vary in the two samples and, if so, which contextual risks or child characteristics that differed between samples might account for this difference. Analyses of adolescent attachment focus on the Secure/Insecure dichotomy because that is the dominant approach in the literature and because analyses of the continuous Coherence scale yielded similar findings. The main analyses consider attachment security with mothers because of the high rate of single parents, the high overlap in classifications with mothers and fathers, and because the early childhood observations focused on mothers. We use parametric analyses (except for the logistic regression) because

the variable distributions were (at least) quasi-normal and no statistical assumptions were violated.

Results

Preliminary analyses

Attrition analyses within the clinic and community samples indicated that retention did not differ by child sex, minority status, parent education, or early caregiving sensitivity (all p's $\geq$.2). Descriptive data at the early childhood and adolescent follow-up assessment are provided in Table 1; they show that adolescents in families in the clinic sample are at greater risk than families in the at-risk community sample and had lower verbal intelligence. The pattern of attachment classifications are broadly consistent with existing studies (Privizzini, 2017). Likelihood of Secure attachment differed significantly between samples, and the vast majority (73%) of Insecure adolescents were rated as Dismissing (11% were Preoccupied, 16% were Disorganized). Consequently, we were limited in our ability to assess non-Dismissing forms of Insecure attachment.

Sensitivity and Mutuality in early childhood were highly correlated ($r(183) = .82$, $p<.001$). Given the focus on sensitivity in the previous attachment research we concentrate analyses on caregiver Sensitivity (results with Mutuality were similar; details available from the authors). There was no evidence that treatment history was significantly associated with CAI ratings or observed parent or adolescent behavior in the problem-solving interaction; neither was there evidence that treatment moderated the longitudinal association between early Sensitivity and CAI. Correlations between caregiving variables in early childhood and adolescence are reported in Table 2.

Early caregiving, parent-adolescent relationship quality and adolescent attachment

Table 3 shows the mean differences in key covariates and caregiving variables according to attachment security for the combined samples; attachment security status was

reliably associated with maternal education and adolescent verbal intelligence. The effect size for early Sensitivity was approximately .5 SD between those later coded as Secure versus Insecure; current observed caregiving was also significant but smaller in effect size.

A logistic regression model was conducted with Secure attachment as the dichotomous outcome; caregiving measures form the early childhood and adolescent assessments were included along with *a priori* covariates as well as recent stressful life events given its significant association with risk status. Results, presented in Table 4, indicated that early Sensitivity predicted an increased likelihood of Secure attachment in adolescence after accounting for covariates; current caregiving behavior from the observational assessment in adolescence was not significant. As indicated in Model 2 in Table 4, we obtained a significant sample * Sensitivity caregiving interaction predicting adolescent attachment security: the association between early caregiver sensitivity and adolescent attachment was significantly greater in the at-risk community than the clinic sample. For example, when the logistic model in Table 4 was re-run separately by sample, a significant prediction for Sensitivity was obtained in the at-risk community sample (OR 2.59, 95% CI 1.31 – 5.10, $p<.01$) but not in the clinic sample (OR 1.01, 95% CI .56 – 1.82, p ns).

The moderation by sample suggests that there may be something about risk status between the clinic and at-risk community sample that explains the differential prediction from early caregiver Sensitivity. We considered each of the psychosocial and adolescent characteristics that varied between samples as possible moderators of the early sensitivity prediction to adolescent attachment. None was significant. That is, none of the specific covariates moderated the prediction of adolescent attachment Security from early caregiver Sensitivity (not tabled). One additional possible explanation for the weaker prediction in the clinic sample is that the stability of caregiving is weaker. Correlation analyses indicated that this was not the case: the association between observed caregiver sensitivity in early

childhood and observed caregiver behavior in adolescence did not differ between groups (for example, for early childhood Sensitivity and Warmth/Engagement in adolescents, the stability correlations for the clinic and community samples were r=.56, p<.01 and r=.39, p<.01, respectively).

A further analysis indicated that a marker of child susceptibility to caregiving influence, based on the measure of child irritability assessed in early childhood, was not significantly associated with later attachment and did not modify the prediction of caregiving Sensitivity (not tabled). That is, there was no evidence to support the child differential susceptibility hypothesis in predicting adolescent attachment.

Discussion

Findings from the current study are notable in demonstrating a longitudinal link between quality of early caregiving and attachment narratives in early to mid-adolescence. Adolescent attachment security was related to current parent-adolescent relationship quality, but it was early and not later caregiving quality that independently predicted adolescent attachment representations. These associations were robust after accounting for psychosocial risk and socio-demographic covariates, including verbal intelligence. Further analyses showed that this longitudinal prediction was significantly stronger in an at-risk community sample than a clinic sample.

There is substantial evidence that early caregiver sensitivity predicts later behavioral and social adjustment. Using data from the NICHD day care study, for example, Haltigan and colleagues (Haltigan, Roisman, & Fraley, 2012) found that early maternal sensitivity predicted fewer teacher-reported behavioral problems in adolescence (although this did not extend to parent-reported problems); other analyses (Raby, Roisman, Fraley, & Simpson, 2015) indicated that early sensitivity was associated with adult academic achievement and educational outcomes. Our findings extend prior work in demonstrating a long-term link

between the experience of caregiver sensitivity and individual differences in the way in which adolescents talked about and represented those relationships many years later. That longitudinal prediction is a novel finding and may be particularly notable given ongoing debates about the construction, meaning, and assessment of attachment security in adolescence and how it may differ from other periods in the life course. The finding that caregiving quality as currently observed in adolescence did not predict attachment quality independently of early caregiving is also notable and novel. That implies a particular importance of early caregiving influence and a reduced impact of caregiving in adolescence on the formation of adolescent attachment representations. Some authors have argued that adolescents with a secure attachment "state of mind" may be better able than those with an insecure representation to display positive, constructive behavior which facilitates parental sensitivity to adolescent's emotional states (Allen & Land, 2008). If so, then attachment security in adolescence may be as much a cause as an effect of the current caregiving environment. Our findings are congruent with this interpretation. In any event, the finding that adolescent attachment is reliably associated with early caregiver sensitivity – at least in a non-clinic sample – implies that it is part of a predictable developmental course that may be instigated by early sensitivity.

Our finding of substantial stability in caregiving quality is not novel, but is significant given that caregiving assessments were separated by many years, involved separate teams of coders, and employed different observational assessment paradigms. These findings underscore the value of well-composed observational assessments for tapping into the stable relationship patterns between parents and children for investigating the role of caregiving quality on behavioral and somatic health in children, e.g. (O'Connor et al., 2015). This stability of caregiving may be especially important in relation to longitudinal research on attachment classifications, and its (in)stability. The lack of stability in attachment

classifications in high-risk contexts (Groh et al., 2014; Pinquart et al., 2013) has been interpreted as implying a sizable change in the caregiving quality – although direct evidence for this was rarely presented. Our finding that the prediction of adolescent attachment from early caregiver sensitivity was significantly weaker in the clinic compared with the at-risk sample might have resonated with this observation. However, we could formally reject weaker stability of caregiving quality as a reason for the weaker prediction to attachment security in the clinic sample – stability in caregiving quality was equally strong in the clinic and at-risk community samples. Other explanations for the weaker long-term prediction of attachment security in the clinic sample were no more instructive. For example, families in the clinic sample did experience comparatively greater stress and disadvantage than families in the at-risk community sample, but these factors, as measured, did not explain the differential prediction to later attachment security. Neither did we find evidence that child characteristics suggested to index susceptibility to rearing influence moderated the long-term prediction from caregiver sensitivity to attachment. Of course, it is possible that we were not able to identify a particular factor that explained the differential longitudinal prediction of adolescent attachment in the two samples because the effect is carried by many factors, each with a modest and cumulative effect.

Several limitations of the study deserve attention. One is that we did not have attachment classification measures at the early childhood assessment, and so are unable to contrast stability in caregiving with stability in attachment classifications. Second, although attachment research is largely influenced by interview and narrative assessments (Allen, Moore, Kuperminc, & Bell, 1998; Joseph, O'Connor, Briskman, Maughan, & Scott, 2014; Kobak & Sceery, 1988), other kinds of measures exist (Kim, Boldt, & Kochanska, 2015) and need to be incorporated in longitudinal research linking caregiving and attachment across multiple periods in the life course. Additionally, our assessment of caregiving did not

incorporate all of the many aspects that may be related to attachment quality (Allen et al., 2003; Ducharme, Doyle, & Markiewicz, 2002; Karavasilis, Doyle, & Markiewicz, 2003; Harvey & Byrd, 2000); our reliance on a semi-structured play and tidy-up task may not have optimized the early assessment of caregiver sensitivity. Also, as noted, there were important differences in risk status between adolescents in the clinic and at-risk community groups, including adolescent verbal intelligence, but none of these independently explained the differential prediction of adolescent attachment from early caregiver sensitivity; we are therefore unable to account for this moderated effect. Set against these limitations are several strengths, including extensive observational data on two occasions many years apart; narrative attachment assessments using sensitive methods; the inclusion of two contrasting samples on whom an identical assessment protocol was administered; and a comparatively large sample size with good retention for this kind of research in high-risk settings.

Several clinical research implications of the findings deserve further attention. Probably the most notable is the significant and persisting role of early caregiver sensitivity on the formation of adolescent attachment security. This confirms a particularly strong role to early caregiving quality and underscores the value in targeting early caregiving quality for shaping adolescents' relationship representations. There are, of course, examples of this kind of intervention work already in practice (Dozier, Albus, Fisher, & Sepulveda, 2002). Also, our finding that attachment security in adolescence covaried with verbal intelligence may be important, but its interpretation is unclear because verbal intelligence was not a reliable predictor of security in the regression model. Finally, the study highlights adds to a wealth of data (O'Connor, Humayun, Briskman, & Scott, 2016) on the value of observational assessments for testing and refining clinical hypotheses in developmental research.

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Table 1. Demographic and Descriptive Data According to Sample: Means (SD) or Percentages (n).

	Total n=209	Clinic n=107	Community n=102	F/Chi-square (df)
Descriptive data				
Child age	12.18 (1.81)	13.26 (1.81)	11.04 (.89)	125.20 (1,207)***
Child gender (male)	72% (151)	76% (81)	69% (70)	1.30 (1)
Maternal education	1.93 (1.07)	1.62 (.80)	2.24 (1.20)	18.55 (1,197)***
Minority status	29% (57)	17% (16)	41% (41)	13.45 (1)***
Single-parent status	55% (115)	50% (53)	61% (62)	3.66 (1)
Free school meals	30% (59)	29% (29)	31% (30)	.12 (1)
Verbal IQ	100.02 (17.26)	94.07 (14.72)	106.46 (17.55)	29.74 (1,200)***
Stressful Life events	5.80 (2.70)	6.18 (2.77)	5.39 (2.58)	4.38 (1,198)*
Parenting				
Early childhood				
Sensitivity	3.89 (1.36)	3.83 (1.41)	3.94 (1.32)	.22 (1,149)
Criticism (count)	.09 (.19)	.06 (.11)	.12 (.25)	3.64 (1,149)
Adolescence				
Warmth/Engagement	3.75 (.75)	3.76 (.73)	3.76 (.77)	.00 (1,168)
Angry/Irritable	1.46 (.80)	1.45 (.72)	1.48 (.87)	.05 (1,168)
Adolescent Attachment				
Secure (mother)	62% (119)	52% (52)	73% (67)	8.93 (1)**

Note: n's for some variables differ from n's in the heading because of missing data. The F/Chi-square analyses compare the means or rates in the clinic and community samples. Demographic data are based on the adolescent follow-up assessment. * p<.05, ** p<.01, *** p<.001.

Table 2. Associations between Observed Caregiving Quality in Early Childhood and Adolescence.

	Early Childhood		Adolescence	
	Sensitivity	Criticism	Warmth/Engagement	Angry/Irritable
Sensitivity	--			
Criticism	-.27**	--		
Warmth/Engagement	.48***	.11	--	
Angry/Irritable	-.24**	-.07	-.49***	--

Note: ** p<.01, *** p<.001.

Table 3. Associations Between Adolescent Attachment Security and Caregiving and Child and Family Characteristics.

	Adolescent Attachment Security		
	Secure	Insecure	F(df)
Demographic factors			
Child age	11.98 (1.67)	12.44 (1.92)	3.15 (1,190)
Maternal education	2.04 (1.07)	1.68 (.95)	5.32 (1,181)*
Verbal IQ	103.27 (16.89)	94.01 (16.30)	13.95 (1,190)***
Stressful Life Events	5.57 (2.64)	6.35 (2.73)	3.69 (1,183)
Caregiving quality in early childhood			
Sensitivity	4.19 (1.34)	3.43 (1.30)	10.92 (1,138)***
Criticism	.08 (.16)	.11 (.24)	.79 (1,138)
Caregiving quality in adolescence			
Warmth/Engagement	3.83 (.76)	3.58 (.69)	4.44 (1,160)*
Angry/Irritable	1.47 (.80)	1.52 (.83)	.15 (1,160)

Note: Adolescent attachment data are provided for mothers. * p<.05, ** p<.01, *** p<.001.

Table 4. Prediction of Secure Adolescent Attachment Classification

	Model 1		Model 2	
	B	OR (95% CI)	B	OR (95% CI)
Step 1.				
Demographic factors				
Constant	-3.94	.04	-2.64	.07
Gender	-.33	.51 (.27 – 1.91)	-.29	.75 (.28 – 2.04)
Age	.18	1.19 (.87 – 1.63)	.15	1.17 (.86 – 1.58)
Maternal education	.07	1.07 (.65 – 1.76)	-.01	.99 (.59 – 1.67)
Verbal IQ	.01	1.01 (.98 – 1.04)	.01	1.01 (.98 – 1.04)
LE	-.15	.86 (.73 – 1.02)	-.16	.85 (.72 – 1.01)
Risk (Sample)	1.04	2.83 (.95 – 8.40)	-2.08	.13 (.01 – 2.24)
Caregiving quality in early childhood				
Sensitivity	.39	1.48 (1.01 – 2.17)*	.09	1.10 (.70 – 1.72)
Criticism	-.12	.88 (07 – 11.98)	.63	1.87 (.11 – 31.54)
Caregiving quality in adolescence				
Warmth/Engagement	.15	1.16 (.56 – 2.38)	.24	1.27 (.82 – 2.63)
Angry/Irritable	-.07	.93 (.54 – 1.60)	-.03	.97 (.56 – 1.68)
Step 2.				
Sample X Parent sensitivity			.84	2.30(1.10 – 4.82)*

Note: Sample (risk status) is coded 0=clinic, 1=community; adolescent gender is coded 0=female , 1=male. SLE = stressful life events. * $p<.05$.